

WHAT IS CLAIMED IS:

- 1 1. A preamble to signify a transmission, the preamble comprising:
2 an expected sequence field, the expected sequence field to contain a first sequence of
3 unscrambled values, wherein the first sequence of values is known by a receiver; and
4 a synchronization field following the expected sequence field, the synchronization field
5 to contain a second sequence of values scrambled by a scrambler.
- 1 2. The preamble of claim 1, wherein the first sequence is inserted into the preamble before
2 the remainder of the preamble has been modulated.
- 1 3. The preamble of claim 1, wherein the first sequence is inserted into the preamble after the
2 remainder of the preamble has been scrambled.
- 1 4. The preamble of claim 1 further comprising a start frame delimiter following the
2 synchronization field, the start frame delimiter to contain a third sequence of values scrambled
3 by the scrambler.
- 1 5. The preamble of claim 1, wherein the preamble is an enhancement to an existing
2 preamble, and wherein the expected sequence field and the synchronization field combined is
3 equal in duration to a synchronization field in the existing preamble.
- 1 6. The preamble of claim 5, wherein the expected sequence field is transparent to a receiver
2 expecting the existing preamble, and wherein the receiver may synchronize to the
3 synchronization field.

- 1 7. The preamble of claim 1, wherein the first sequence of values is an arbitrary sequence of
2 values, known to both a transmitter and the receiver.
- 1 8. The preamble of claim 1, wherein the first sequence of values is a sequence of 1's.
- 1 9. The preamble of claim 1, wherein the first sequence of values is a sequence of 0's.
- 1 10. The preamble of claim 1, wherein the first sequence of values is a sequence of alternating
2 1's and 0's.
- 1 11. The preamble of claim 10, wherein the first sequence of values is a combination of equal
2 length groups of alternating 1's and 0's, wherein each group is of length greater than one value.
- 1 12. The preamble of claim 1, wherein the first sequence of values is periodic in nature.
- 1 13. The preamble of claim 1, wherein the expected sequence field and the synchronization
2 field combined is equal to a multiple of the length of a pseudo-random number sequence, and
3 wherein the expected sequence field is eight (8) times the length of the pseudo-random number
4 sequence.
- 1 14. The preamble of claim 1, wherein the preamble can be used in a digital communications
2 network.
- 1 15. The preamble of claim 14, wherein the digital communications network is wireless.
- 1 16. The preamble of claim 15, wherein the digital wireless communications network is
2 adherent to an IEEE 802.11b technical standard.

- 1 17. The preamble of claim 15, wherein the digital wireless communications network is
- 2 adherent to an IEEE 802.11g technical standard.

1 18. A method for low power preamble detection comprising:
2 detecting signals on a transmission medium;
3 using analog circuits to match samples of the detected signals with a copy of an expected
4 sequence, wherein the expected sequence is transmitted as part of the preamble; and
5 enabling digital circuitry if the samples of the detected signals match the copy of the
6 expected sequence.

1 19. The method of claim 18 further comprising after the enabling:
2 training receive circuitry with a remainder of the preamble; and
3 providing data received after the preamble to the digital circuitry for processing.

1 20. The method of claim 19, wherein the method repeats after the providing.

1 21. The method of claim 19, wherein training comprises adjusting equalizers and filters
2 based on the remainder of the preamble.

1 22. The method of claim 18 further comprising after the enabling:
2 disabling the digital circuitry once processing related to the preamble is complete; and
3 repeating the detecting, using, and enabling.

1 23. A method for preamble detection at a receiver comprising:
2 determining an operating mode of a transmitter;
3 if the transmitter can transmit an expected sequence field in a preamble,
4 detecting signals on a transmission medium;
5 using analog circuits to match samples of the detected signals with a copy of an
6 expected sequence, wherein the expected sequence is transmitted as part of the preamble;
7 enabling digital circuitry if the samples of the detected signal match the copy of
8 the expected sequence;
9 the method further comprising if the transmitter does not transmit an expected sequence
10 in a preamble,
11 detecting signals on the transmission medium; and
12 using digital circuits to process samples of the detected signals to search for a
13 specific pattern.

1 24. The method of claim 23 further comprising after the enabling:
2 training receive circuitry with a remainder of the preamble; and
3 providing data received after the preamble to the digital circuitry for processing.

1 25. The method of claim 23 further comprising after the second using:
2 training receive circuitry with a remainder of the preamble; and
3 providing data received after the preamble to the digital circuitry for processing.

1 26. The method of claim 23, wherein the receiver remains in an operating mode depending
2 on the operating mode of the transmitter until the receiver is reset.

1 27. The method of claim 23, wherein the receiver remains in an operating mode depending
2 on the operating mode of the transmitter until the receiver moves out of range of the transmitter
3 and begins communicating with a different transmitter.